Globalstar

Satellites Ensure Your IoT Big Data Yields Valuable Insights

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IoT and Big Data

Big data is a collection of data sets so large and complex that it becomes difficult to process.

It can also manifest itself as a constant flow of monitoring information, readings or measurements, used to **monitor** or **track** an asset, commodity or cargo.

This continuous and uninterrupted flow of information is then used to yield meaningful actionable intelligence.

"The definition of big data? "Who cares? It's what you're doing with it“.

The collation and analysis of big data help to formulate big decisions regarding condition-based maintenance, fuel consumption optimisation, and smart route planning.

So, how can Globalstar help?

The ability to **continuously** deliver the data required to formulate these decisions in an **un-interrupted** manner, **regardless of location**.

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Why Satellite?

The Tracking and monitoring of assets, and the goods that those assets are transporting, is required on a global scale

Uninterrupted

Utilising a satellite network for IoT applications ensures the reporting of data in an uninterrupted, real time fashion. If the data is mission-critical and actionable, it needs to be delivered as soon as it is recorded, to make it real and relevant

Regardless of location

95% of the world's population has access to some form of cellular access (2G/3G/4G/LTE/5G) – Ericsson

However, 95% of the world's population is concentrated on just 10% of the world's land - (European Commission, Joint Research Centre)

So…

The percentage of the Earth's surface which has some sort of cellular coverage is a lot, lot lower.

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The Globalstar Constellation

- Globalstar operates a constellation of low-earth-orbit (LEO) satellites:
  - Constellation orbits at approximately 1,414 km (~ 850 miles) while Geostationary (GEO) satellites orbit at approximately 22,240 miles

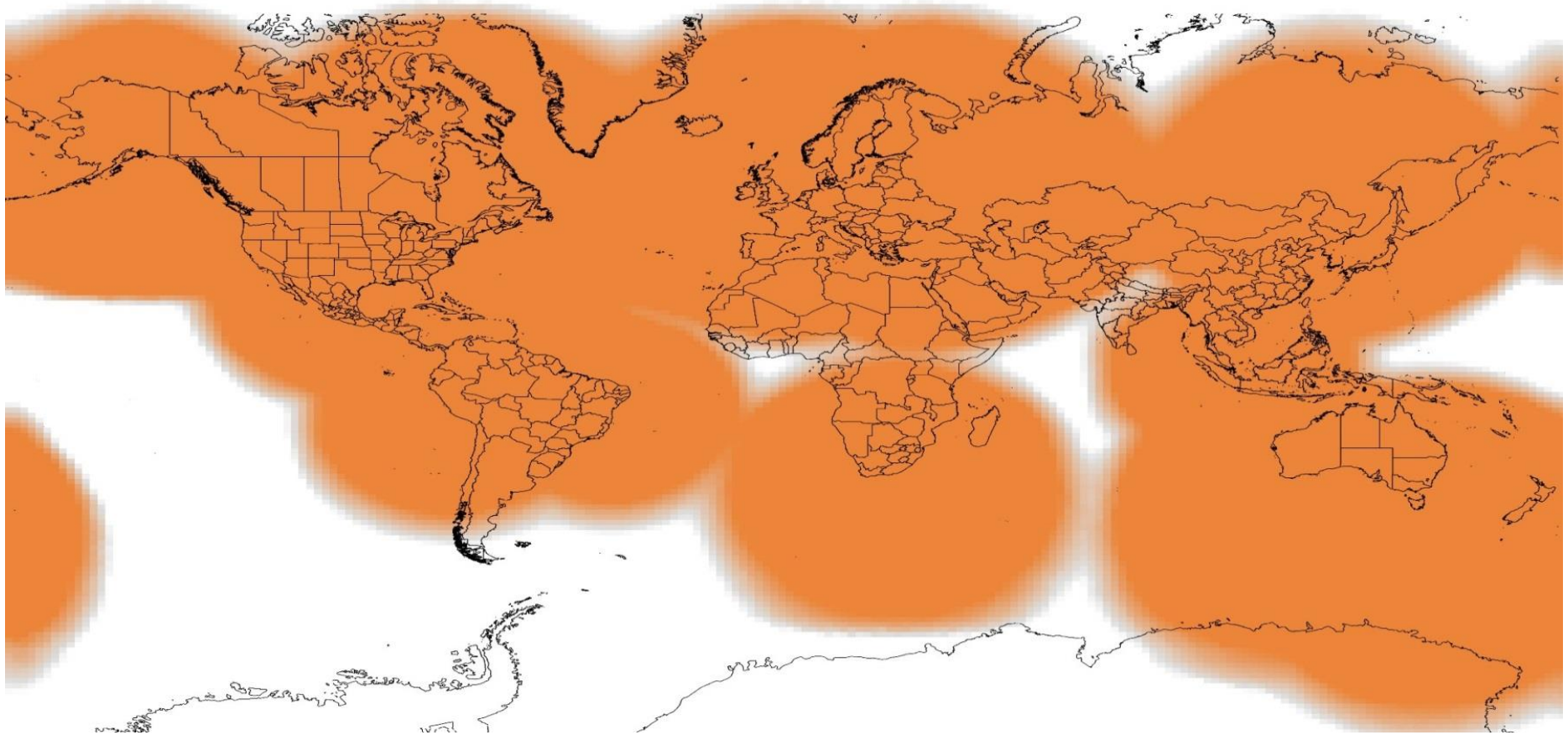
- LEO is a global constellation of mobile Low Earth Orbit satellites (by comparison GEO satellites cover a specific region of the earth's surface at any given time)

- Globalstar's "Bent-Pipe" architecture provides communications through a network of terrestrial gateways around the world

- Architecture offers enhanced quality and low latency:
  - "Brains" of the system are located in ground stations, enabling faster and more cost-effective system maintenance and upgrades

- Fixed length packets are all 9 bytes
- Message sizes can be anywhere from 9 to 144 bytes in length

Globalstar Coverage



Primary Globalstar Service Area (100-90% completion rate*)

Fringe Globalstar Service Area (90-80% completion rate*)

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1 years maritime movements using Globalstar Tracking

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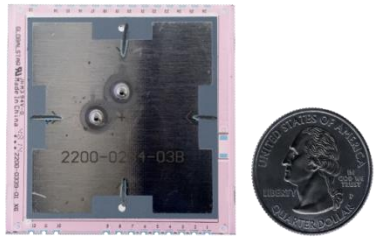
Globalstar products enable the collection and transmission of Big Data

- **SmartOne Solar, SmartOne C, STX3, STINGR:**
  - Provide Global Coverage
  - Combine the latest Globalstar Simplex Data Service, GPS & RF technologies
  - Incorporate patented STX technology
  - Provide a long battery life solution
  - Have a ruggedized, low profile, stealth design
  - Are easy to install, no need for external power or harnesses
  - Allow the introduction of serial TTL sensors to measure an array of conditions

- **What Issues do Simplex Products Solve?**
  - Monitor assets with or without available power
  - Multi-year battery operation with daily notification
  - Assets that need immediate alerts for “alarm” conditions
  - Cargo door open, “panic” button, high temp, etc.
  - Monitor assets in harsh environmental conditions



Harness the power of the sun - SmartOne Solar

- Solar-power recharges the internal batteries to provide 8+ years of maintenance-free service
- Intelligent IoT device that provides remote monitoring and tracking
- Cost reductions, no need for field trips to replace batteries, ideal for remote unpowered assets
- Certified Intrinsically Safe as well as meeting IECEx, ATEX, HERO certifications
- Motion sensor enables event-based reporting, eliminates “same state” messaging
- Total packaged solution requires no harnesses, no external power and no external antenna
- Change of location sensing sends alerts if asset moves outside of pre-determined range
- Messaging cost reduction mode: reduced satellite messaging if asset remains in same location
- Run time monitoring
- Accepts serial signals from device sensors (Temperature, humidity, flow measurement etc.)

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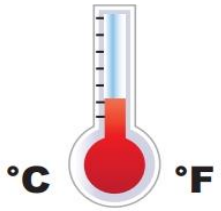
Our Partner Resellers and Integrators harvest Globalstar's Big Data messages to provide customers with vital information

Pressure



Temperature

Location

Shocks

Level

Leakage

Mileage per Axle

FleetMon
Tracking the Seven Seas

OVINTO

FAGOR
Fagor Electrónica

NOVACOM
EUROPE

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Ovinto - Advanced sensors and satellite comms enabling users to monitor temperature, air pressure, fuel and oil levels

Ovinto and B United – Helping beer lovers enjoy the perfect pint

- Ensuring the quality and taste of craft beers as they travel for thousands of kilometres across land and sea
- Sensors monitor numerous metrics helps ensure optimum beer quality, including the environment in each tank
- Sensors consume a very low amount of energy, and therefore can continuously monitor the contents of the tank, even on long journeys

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One final thought

Tracking is IoT!!

Globastar - previously best – known for enabling pure tracking solutions

.....but

Our devices and network can be utilised to **monitor** also

Consider:

- The operational value that can be derived from having an accurate understanding of the location and status of high-value assets and their payload
- Security and safety are enhanced thanks to IoT, and supply chain relationships dramatically improve when delivery times can be more accurately predicted.

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Thank You!

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